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Claims of EP0534195

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1. Reactor to execution heterogeneous-catalytic gaseous phase reactions, characterised in that reaction gas mixture radial to long axis reactor and preferably centripetal by catalyst bed flows, and that the resultant heat of reaction it becomes existing by means of a bank of tubes heat exchanger, from or several coiled tubes, incorporated into the catalyst pouring, by which a cooling medium flows a discharged.
2. Verfahren according to claim 1, characterised in that with centripetal direction of flow the reaction gases introduced into the reactor and/or with centrifugal direction of flow the reaction gases into a distributor annular space, arranged outgoing from the catalyst pouring, around the catalyst pouring arrive, which becomes from the receiver wall and with these connected, circumferential shirt formed, which is provided with passage openings.
3. Verfahren according to claim 1, characterised in that with centripetal direction of flow the reaction gases outgoing from the catalyst pouring and/or with centrifugal direction of flow into the reactor introduced the reaction gases in a concentric to long axis arranged, inner collecting pipe arrive, which is provided with passage openings and can over connecting piece lines by outside of the reactor be started.
4. Process according to claim 1, characterised in that a reaction gas mixture in accordance with one in the claims 2 or of the 3 described embodiments radial to long axis of the reactor and preferably centripetal a loose catalyst pouring flows through, and that the resultant heat of reaction becomes by introduction of cold reaction gases into the reactor after the principle of the Kaltgasquenchung consumed.
5. Verfahren after the claims 1 to 4, characterised in that the freed heat of reaction by a combination 4 cool methods - in the catalyst bed of incorporated bank of tubes heat exchangers with or several coiled tubes, in which a cooling medium flows and which principle of the Kaltgasquenchung -, specified in the claims 1 and, discharged becomes.
6. Methods after the claims 1 to 3 and 5, characterised in that bundle of several concentric coiled cooling tubes in layers arranged become, whereby the screw direction of adjacent bundles can change and the slope of the tubing coil can vary and/or more vertical and horizontal distance adjacent tubing coils and the pyrometric requirements adapted can become.
7. Verfahren after the claims 1 to 3, 5 and 6, whereby with centripetal current of the reaction gas mixture the slope of the tubing coils and/or the distance adjacent tubing coils are smaller in the vicinity of the perimeter of the catalyst pouring.
8. Method after the claims 1 to 3, 5 and 6, whereby with centrifugal current of the reaction gas mixture the slope of the tubing coils and/or the distance adjacent tubing coils are smaller in the vicinity of the inner limitation of the catalyst pouring.
9. Verfahren after the claims 1 to 3, 5 to 8, characterised in that cold reaction gas mixture by recycled heated cooling medium heated becomes, which flows through several outer with centripetal direction of flow or, with centrifugal direction of flow or several inner tubing coils, which are disconnected of the condenser tube bundle.
10. method after the claims 1 to 9, characterised in that the reaction gas mixture in a circuit by the reactor guided, used to the synthesis, becomes, whereby remote after the passage by the reactor value products and byproducts of the reaction as well as eventual otherwise fabrics enriching developed in the circle gas become by suitable means from the circuit and the gas mixture subsequent, supplied before which renewed passage by the reactor again feeds as well as reaction modifiers become by suitable means if necessary.
11. Method after the claims 1 to 10 to the preparation of ethylene oxide from ethylene and oxygen.
12. Method after the claims 1 to 10 to the preparation of acrylic acid from acrolein and oxygen.
13. Method after the claims 1 to 10 to the preparation of methacrylic acid from methacrolein and oxygen.
14. Method after the claims 1 to 10 to the preparation of styrene by dehydration of Methylphenylcarbinol.
15. Method after the claims 1 to 10 to the preparation of methanol from synthesis gas.
16. Method after the claims 1 to 10 to the Methanisierung of synthesis gas.
17. Method after the claims 1 to 10 for conversion of very low-temperature.
18. Method after the claims 1 to 10 for the conversion of water with olefines to alcohols.
19. Method after the claims 1 to 10 to the Oxychlorierung of olefines or aromatics.
20. Method after the claims 1 to 10 to the preparation of methylamines from methanol and ammonia.

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